Igence in Radar

Introduction

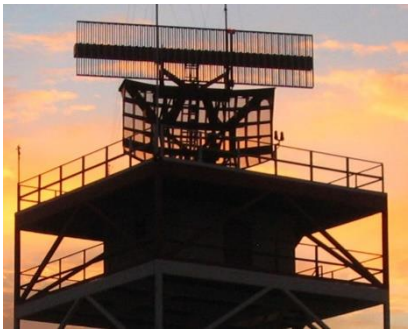
Igence has been involved in the RADAR arena since 2006. Igence Software has utilised its software engineering skills in the engineering and development of Radar monitoring and control systems, air traffic control systems and specialist Radar systems on behalf of its clients.

Where this work has required Radar signal processing algorithms, we have worked closely with Igence Radar Ltd,(see below). who are masters in this specialist area of expertise.

Background

Radar systems are complex and involve speciality hardware, hardware and software systems, monitoring and control systems and the processing of signals and algorithms. Systems can be specific to aerospace, marine, defence and scientific requirements.

ASR-11 (air surveillance radar), is the most commonly used primary surveillance Radar for Air Traffic Control systems.



For several years Igence Software has delivered control and monitoring systems for primary and secondary Radar in civil and defence installations.

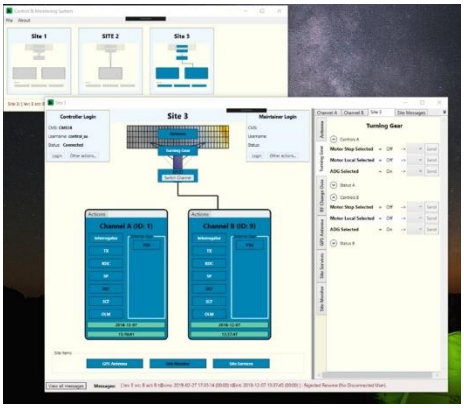
Due to its critical safety mission, extreme uptime requirements and required compatibility with all types of aircraft and avionics systems the design of airport surveillance Radar is strictly controlled by Government Agencies.

Our CMS developments are required where appropriate to conform to regulations and capability as required by NATS (UK), FAA (USA) and EASA (European Union).

Control & Monitoring Systems

Igence have developed CMS for clients, usually Windows© based. A CMS will usually act as the human machine interface to the installed radar system & equipment. One CMS system can provide access to both PSR and MSSR systems.

A CMS can provide both control of and monitoring of the equipment, set-up and configuration information, status and status logs, Interrogator Channel events, Fault isolation etc. Systems can also control user access, passwords and incorporate appropriate levels of Cyber protection as required.



The usual configuration is via a network based PC, (can be local and remote), and customers may have text reports, excel based reports, warning messages and other text or graphical information displayed as specified in our development brief.

Wind Farm Radar Mitigation

Large groups of Wind Turbines (Wind Farms) can have a significant impact on radar systems used for aviation. When the turbines are operational the revolving blades can be identified as ‘targets’.

The turbines can generate ‘clutter’ and can affect aviation Radar to the extent of making genuine ‘targets’ difficult to identify.

The interference generated by the turbines can desensitize the radar in the area of the wind farm, causing legitimate ‘targets’ to disappear. This effect can also impact the location or deployment of wind farms.

Work in this area is continuing through MOD and DSTL projects.

Igence Projects In Radar

2009 – 2011. - Plextek - HMI (Human Machine Interface) called BlighterView, for the display and control of the Blighter® Radar.

2010 – 2014. - Air Traffic Control System radar development of airspace controller system functionality (TMD) - (a *joint project with Igence Radar*).

2016 – 2018. Development of a Windfarm Radar system for a private customer, (*a joint project with Igence Radar*). This involved the use of LIDAR devices. The prototype was tested live in Switzerland.

2017 - present - Development and maintenance / updates of a Radar Control Monitoring System for Raytheon (Condor Mk2 and Mk3), for UK/ USA/ European deployment.

‘***Igence Radar Ltd*** *is a separate entity based in Malvern UK. They have many years’ experience in the understanding of the scientific principles of EM scattering, radar signal & clutter fluctuations and processing, which underpin the operation of modern radar systems. Radar signal processing algorithms and concepts, developed for the detection of small targets in clutter, have been widely implemented in both experimental and operational radars. This experience has been applied to develop generic radar performance prediction tools, which have been used to produce performance prediction compliance results for MoD radar procurements. These performance prediction tools underpin a bespoke radar simulation capability which has been used to support both UK and international customers.*

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